

Remarks

Applicants hereby add new claims 29 and 30 and cancel claims 17 and 23. Accordingly, claims 1-16, 18-22, and 24-30 are pending in the present application. Support for the new claims may be found at least at page 6 lines 5-26 of the specification.

Claims 6, 12, 18, 24, and 27 stand rejected under 35 USC §112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention.

Claims 1, 7, 13, and 19 stand rejected under 35 USC §103(a) as being unpatentable over Carlsson et al. (hereinafter "Carlsson") (US 2004/0193334) in view of Paulos et al. (hereinafter "Paulos") ("PRoP: Personal Roving Presence").

Applicants respectfully request reconsideration of the rejections.

Referring to the §112 rejection of claim 6, in the 29 Feb 2008 Office Action, the Examiner points out that that the limitation "logging forward motion" is recited by claim 5 and the limitation "logged information" is recited by 6. Furthermore, the Examiner asserts that claim 6 must be amended, either to indicate that the "logged information" of claim 6 is related to the "logging forward motion" limitation of claim 5 or to indicate that the "logged information" of claim 6 is not related to the "logging forward motion" limitation of claim 5.

The Examiner asserts that the "logging forward motion" limitation of claim 5 generates the "logged information" used by the surrogate in claim 6. This may or may not be the case. Claim 6 does not recite where the "logged information" of claim 6 came from or how it was generated. It merely indicates that autonomously moving the surrogate uses "logged information," a term used for the first time in claim 6. Applicants assert that just because claim 6 does not indicate how the logged information was created does not render claim 6 indefinite.

Applicants note that both claim 5 and claim 6 depend from claim 1. Accordingly, claim 5 is to be examined independent of claim 6.

35 U.S.C. §112, second paragraph, requires that claims particularly point out and distinctly claim the subject matter that the patent applicant regards as their invention. Applicants refer to MPEP §2173.02 (8th ed., rev. 6) which states the essential inquiry pertaining to a §112, second paragraph requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree

of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

(A) the content of the particular application disclosure;

(B) the teachings of the prior art; and

(C) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

In reviewing a claim for compliance with 35 U.S.C. §112, second paragraph, the Examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. §112, second paragraph by providing clear warning to others as to what constitutes infringement of the patent. MPEP §2173.02 (8th ed., rev. 6). A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers and they can define in the claims what they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. MPEP §2173.01 (8th ed., rev. 6).

Applicants submit that the claims are clear and definite on their face. In particular, it would be clear to one of skill in the art that logged information may be used to autonomously move the surrogate regardless of how and/or when the information was logged. Moreover, one of ordinary skill in the art with the opportunity to consider and review the contents of the application disclosure pursuant to the above authority would clearly understand the language of claim 6.

Applicants respectfully request withdrawal of the §112 rejection of claim 6 for the above-mentioned compelling reasons.

Claims 12, 18, and 24 recite limitations similar to claim 6. Accordingly, Applicants assert that claims 12, 18, and 24 are definite for at least the compelling reasons mentioned above in relation to claim 6.

Referring to the §112 rejection of claim 27, the Examiner asserts that claim 27 is indefinite because claim 27 does not describe how a transmitter knows that an unsuitable degradation will occur so that a video signal can be transmitted before the degradation is detected.

Claim 27 does not recite a transmitter that knows that unsuitable degradation will occur. Accordingly, Applicants assert the Examiner's requirement

that claim 27 recite how the transmitter knows that the unsuitable degradation will occur is improper.

Claim 27 recites that a video signal is wirelessly transmitted at or above an acceptable bandwidth prior to the “detecting unsuitable degradation” limitation of claim 1 and uses the phrase “prior to the detecting” to establish when the transmitting takes place relative to the detecting of the unsuitable degradation. Claim 27 does not recite whether or not the transmitter knows that an unsuitable degradation will occur prior to transmitting the video signal, it merely recites that a video signal is transmitted prior to the detecting of the unsuitable degradation. Accordingly, Applicants assert that claim 27 is not indefinite.

Furthermore, Applicants assert that one of skill in the art would clearly understand, based on the language of claim 27, that a video signal is transmitted prior to the detecting. Knowing whether and/or how the transmitter knows that an unsuitable degradation will occur prior to transmitting the video signal is not necessary for one of skill in the art to understand, based on the language of claim 27, that a video signal is transmitted prior to the detecting. Accordingly, Applicants submit that claim 27 is clear and definite. Moreover, one of ordinary skill in the art with the opportunity to consider and review the contents of the application disclosure pursuant to the above authority would clearly understand the language of claim 27.

Applicants respectfully request withdrawal of the §112 rejection of claim 27 for the above-mentioned compelling reasons.

Referring to the §103 rejection of independent claim 1, claim 1 recites moving a surrogate under wireless control by a user and autonomously moving the surrogate while the surrogate is still receiving wireless communications of the wireless control to provide suitable wireless communications of the wireless control.

Carlsson discloses an unmanned aerial vehicle (UAV) that monitors a command link and classifies the command link as being in a connection state or in an interruption state. Carlsson refers to these states as quality levels. If in the connection state, the UAV follows a primary route. If in the interruption state for more than a particular amount of time, the UAV increases its altitude and follows an emergency route.

Carlsson mentions that more precise quality levels may also be defined.

However, Carlsson does not disclose a state in which the UAV moves autonomously while still receiving wireless communications of the command link. In fact, Carlsson discloses that the UAV continues according to the most recently received user control for a period of time *after* entering the interruption state before autonomously abandoning the most recently received user control, gaining elevation, and following the emergency route. Furthermore, neither Carlsson nor any of the other references cited by the Examiner disclose moving a surrogate under wireless control by a user and autonomously moving the surrogate while the surrogate is still receiving wireless communications of the wireless control to provide suitable wireless communications of the wireless control.

The Examiner asserts that based on the disclosure provided by Carlsson, it would have been obvious to implement a third quality level in which communications with the UAV are interrupted but in which the UAV is still receiving communications of some sort and yet is moving autonomously. *Although the Examiner has conceived of such a quality level, it is not disclosed by Carlsson.*

Furthermore, Carlsson does not suggest such a quality level in which the UAV moves autonomously while still receiving wireless communications of the command link. Although Carlsson does mention that more precise quality levels may be defined, Carlsson does not disclose how such quality levels would be used or suggest any advantages for using such quality levels. Furthermore, Carlsson does not suggest that the UAV would follow the emergency route when the command link is in any state other than the interruption state. Accordingly, even if an intermediate quality level was defined that was between Carlsson's connection state and interruption state, Carlsson makes no suggestion that the UAV would begin to follow the emergency state based on the intermediate quality level.

Accordingly, neither Carlsson nor the other references cited by the Examiner disclose each of the limitations of claim 1. In particular, the Examiner has not cited a reference disclosing moving a surrogate under wireless control by a user and autonomously moving the surrogate *while the surrogate is still receiving wireless communications* of the wireless control to provide suitable wireless communications of the wireless control as recited by claim 1.

Applicants respectfully submit that numerous positively-recited limitations of the claims are not disclosed or suggested by the teachings of Carlsson and the

§103 rejection is improper for this reason.

Applicants respectfully request withdrawal of the §103 rejection of claim 1 for the above-mentioned compelling reasons.

The claims which depend from claim 1 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Claim 3 recites limitations similar to claim 13 discussed below. Accordingly, Applicants assert that claim 3 is allowable for at least the reasons described below in relation to claim 13.

Referring to the §103 rejection of independent claim 7, claim 7 recites activating a human perceptible indicator perceptible to humans in the presence of a surrogate while the surrogate is autonomously moving.

As described above, Carlsson discloses a UAV that increases its altitude and follows an emergency route when a command link is in an interruption state. Carlsson does not disclose a human perceptible indicator that is activated while the UAV is following the emergency route. The Examiner asserts that such an indicator would be obvious in light of Paulos. Paulos discloses the general principle that precautions must be taken to ensure the safety of people sharing a space with a robot. Further, Paulos discloses that robots should not be capable of injuring a human regardless of the action or inaction of an operator. According to Paulos, even out of control robots must interact safely with humans.

Paulos does not disclose a human perceptible indicator perceptible to humans in the presence of a robot that is activated while the robot is moving autonomously.

One function of a human perceptible indicator may be to warn humans near a surrogate to keep an eye on the surrogate and move out of the way if necessary to avoid injury caused by the surrogate. Of course, the indicator may serve other functions as well. The indicator may help humans near the surrogate to avoid injury by acting themselves rather than assuming that the surrogate is configured to prevent injury. Accordingly, when using the human perceptible indicator of claim 7, the burden of preventing injury may be on the human in the presence of the surrogate, not on the surrogate itself.

In contrast, Paulos emphasizes that a robot (and therefore the robots designers) bears the burden of preventing injury to humans. Accordingly, a human

perceptible indicator perceptible to humans in the presence of a surrogate while the surrogate is autonomously moving is not obvious in light of Paulos since *such an indicator would operate contrary to the principle espoused by Paulos* that the robot bears the burden of preventing injury. Indeed, the robots disclosed by Paulos have no need of a human perceptible indicator since they are designed so that they cannot cause human injury.

The human perceptible indicator recited in claim 7 is not disclosed or suggested in any of the references cited by the Examiner. Furthermore, as described above, the human perceptible indicator of claim 7 is not obvious in light of the cited references.

Applicants respectfully submit that numerous positively-recited limitations of the claims are not disclosed or suggested by the teachings of Carlsson or Paulos and the §103 rejection is improper for this reason.

Applicants respectfully request withdrawal of the §103 rejection of claim 7 for the above-mentioned compelling reasons.

The claims which depend from claim 7 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Regarding amended claim 13, although Carlsson does disclose increasing elevation and following an emergency path after the expiration of a second time interval, Carlsson does not disclose loitering near a location at which loss of wireless control was detected for a non-zero amount of time following loss of the wireless control as recited by claim 13.

In fact, Carlsson discloses that a UAV continues along a primary route, even though a command link has been interrupted, for at least a period of time equal to the second time interval before autonomously increasing elevation and following an emergency route. Accordingly, Carlsson's UAV continues along the primary route away from a location in which the UAV first detects the command link interruption before increasing elevation and following the emergency route. Although Carlsson does disclose that the UAV may circle around a termination endpoint, the termination endpoint is not a location at which the command link was interrupted. Instead, the termination endpoint is a location at the end of the emergency route that the UAV takes after the command link is interrupted.

Accordingly, Applicants respectfully submit that numerous positively-recited limitations of amended claim 13 are not disclosed or suggested by the teachings of Carlsson.

Applicants respectfully request allowance of claim 13 for the above-mentioned compelling reasons.

The claims which depend from claim 13 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to the §103 rejection of claim 15, claim 15 recites autonomously moving a surrogate to regain wireless control after the surrogate remains stationary for a non-zero amount of time following loss of wireless control.

As discussed above, Carlsson discloses that a UAV continues moving along a primary route, even though a command link has been interrupted, for at least a period of time equal to a second time interval before autonomously increasing elevation and following an emergency route.

Accordingly, Carlsson does not disclose a surrogate remaining stationary for a non-zero amount of time following loss of wireless control.

Accordingly, Applicants respectfully submit that numerous positively-recited limitations of amended claim 15 are not disclosed or suggested by the teachings of Carlsson.

Applicants respectfully request allowance of claim 15 for the above-mentioned compelling reasons.

Referring to the §103 rejection of independent claim 19, claim 19 recites autonomously moving a surrogate to an area not currently receiving adequate coverage of wireless control, but in which the surrogate previously experienced adequate coverage of the wireless control to regain adequate coverage of the wireless control.

As discussed above, Carlsson discloses increasing the elevation of a UAV and following an emergency path after a command link interruption. Carlsson discloses an emergency path that is different from the primary path. In other words, Carlsson's emergency path does not simply follow the primary path in reverse, so when following the emergency path, the UAV does not necessarily move to an area in which the UAV previously received the command link.

Carlsson does not disclose that the UAV moves to an area in which the UAV does not currently receive the command link but in which the UAV previously received the command link. Accordingly, Carlsson does not disclose autonomously moving a surrogate to an area not currently receiving adequate coverage of wireless control, but in which the surrogate previously experienced adequate coverage of the wireless control to regain adequate coverage of the wireless control as recited by claim 19.

Applicants respectfully submit that numerous positively-recited limitations of the claims are not disclosed or suggested by the teachings of Carlsson and the §103 rejection is improper for this reason.

Applicants respectfully request withdrawal of the §103 rejection of claim 19 for the above-mentioned compelling reasons.

The claims which depend from claim 19 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Applicants respectfully request allowance of all pending claims.

The Examiner is requested to phone the undersigned if the Examiner believes such would facilitate prosecution of the present application. The undersigned is available for telephone consultation at any time during normal business hours (Pacific Time Zone).

Respectfully submitted,
Norman Paul Jouppe et al.

By:



D. Brent Kenady
Reg. No. 40,045

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